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it is seen at once that the fort will not be hit when

$$v < \sqrt{ag(1 + \csc\phi)}.$$

295. Proposed by B. F. FINKEL, Drury College.

A homogeneous hollow cylinder whose inner radius is half its outer radius, rolls without slipping down a plane inclined at an angle α with the horizontal. Find its acceleration.

SOLUTION BY JOS. B. REYNOLDS, Lehigh University.

If in a section perpendicular to the axis of the cylinder, O is the center and A the point of contact with the plane, we shall have for the moment of inertia about O,

$$I_O = \frac{\pi}{2} e \left(r^4 - \frac{r^4}{2^4} \right),$$

and for the mass

$$m = \frac{W}{g} = \pi e \left(r^2 - \frac{r^2}{2^2} \right),$$

whence

$$I_O = \frac{5}{8} \frac{W}{g} r^2$$

and therefore

$$I_A = I_O + \frac{W}{g} r^2 = \frac{13}{8} \frac{W}{g} r^2.$$

Now taking moments about A, we have $Wr \sin\alpha = I_A \ddot{\theta}$ where $\ddot{\theta}$ is the angular acceleration, or

$$Wr \sin\alpha = \frac{13}{8} \frac{W}{g} r^2 \ddot{\theta},$$

whence $r\ddot{\theta} = \frac{8}{13} g \sin\alpha$, the linear acceleration of the center of the cylinder.

Also solved by H. S. UHLER.

QUESTIONS AND DISCUSSIONS.

EDITED BY U. G. MITCHELL, University of Kansas.

REPLIES.

24. The following facts are significant:

(1) The New England Association of Mathematics Teachers has appointed a committee "to investigate the current criticisms of high school mathematics."

(2) A committee of the Council of the American Mathematical Society has under consideration the question "whether any action is desirable on the part of the Society in the matter of the movement against mathematics in the schools."

(3) At the recent meeting in Cincinnati of the National Education Association an iconoclastic discussion on the topic: "Can algebra and geometry be reorganized so as to justify their retention for high school pupils not likely to enter technical schools?" aroused approbation and applause. An outline of the remarks by one of the speakers was printed in a previous issue.

In view of these facts what should be done by those who believe in the value of mathematics as a general high school study?